Amendments to the Specification:

Please replace the Abstract with the following replacement Abstract:

The present invention relates to real time spectral analysis of wide-band sampled signals, in particular to a method and system for real time digital spectral analysis of wide-band sampled signals using parallel processing techniques. The center frequency of each received wide-band signal is shifted by a small fraction ε of its bandwidth. After sampling and digitizing, the wide-band signals are de-multiplexed into N parallel sample streams for parallel processing. The sample streams are digitally FIR filtered and sub-band signals are determined by decimating the sample streams by a factor of $2^k \cdot N; k = 0,1,...$, wherein only every $2^k \cdot N^{th}; k = 0,1,...$ sample is retained and the others are discarded. These sub-band signals may then be processed using various methods of spectral analysis such as cross-correlation, auto-correlation or phased array applications. Any finite-length FIR filter has a finite transition band. After decimation, the transition band outside sub-band boundaries will suffer aliasing, which causes signals to falsely appear as aliased signals within the sub-band. Shifting all spectral features in the wide-band spectrum with a frequency shift ε prevents false correlation of the aliased signals.